

*Integrated Safety Management
Evaluation of*

**Sandia
National
Laboratories/
New Mexico**

August 1997



Office of Environment, Safety and Health

Executive Summary

EVALUATION:

Office of Oversight Evaluation of
Integrated Safety Management

SITE:

Sandia National Laboratories,
Albuquerque, New Mexico

DATES: June - August 1997

Scope

The Department of Energy (DOE) Office of Oversight evaluated the safety management program at Sandia National Laboratories (SNL), as implemented by the responsible management elements at DOE Headquarters—the Offices of Defense Programs (DP), Nuclear Energy, Science and Technology, and Environmental Management; the DOE Albuquerque Operations Office (AL); the DOE field element with primary operational responsibility for SNL—Kirtland Area Office (KAO); the prime contractor—Sandia Corporation, which is a wholly owned subsidiary of Lockheed Martin Corporation; and selected subcontractors. The evaluation focused on selected SNL facilities and environment, safety, and health programs, such as radiological protection and industrial safety programs.

Results

DOE and SNL have initiated efforts that have resulted in improvement to safety management systems. AL, KAO, and SNL management have demonstrated commitment to improving safety performance through a number of significant

actions. For example, AL, KAO, and SNL line managers have been strong advocates for and aggressive in the implementation of integrated safety management systems at SNL. An implementation plan for integrated safety management was approved by AL in December 1996, and prototypes have been established in two SNL major operating divisions. In a related effort to better integrate safety into its mission activities, SNL has also deployed environment, safety, and health staff to directly support activities of the line organizations. DP and AL have also adopted but not yet implemented the recommendations of a recent independent assessment of DOE's management of the weapons complex—commonly referred to as the 120-Day Study—to address longstanding issues with unclear lines of authority, conflicting directions to contractors, and ineffective safety review processes.

Despite these initiatives, the safety management program at SNL is not yet achieving DOE's objective of integrating safety into work practices so that safety functions and activities become an integral part of the site's mission. Although senior DOE and SNL management have established clear expectations and direction, and have sufficient competent personnel, DOE and SNL management have not adequately ensured that the policies and goals have filtered down to the operational level and have been verified to be effective. As a result, environment, safety, and health performance varies considerably across the site.

The effectiveness and implementation of DOE and SNL environment, safety, and health initiatives is limited by a number of weaknesses. The most significant issues include:

- **Roles, responsibilities, and accountability for performance have not been clearly defined or coordinated to support important safety management functions.** Within DOE, measures for holding managers accountable for safety performance are not clearly linked to effectiveness of environment, safety, and health programs, and DP, AL and KAO are not making sufficient use of their environment, safety, and health specialists to support KAO's assessment of contractor performance and resolution of safety issues. Within SNL, relationships between building managers and tenant operators are not well defined, and SNL has not clearly communicated organizational responsibilities and authorities resulting from the deployment of environment, safety, and health from a central organization to divisions with operational responsibilities.
- **Processes for identifying and incorporating requirements into operational controls and procedures are not formal and sometimes not effective.** AL and KAO have not transmitted a number of applicable requirements, and SNL does not have effective mechanisms for ensuring that applicable requirements are incorporated into manuals and procedures used by environment, safety, and health staff and workers.
- **SNL processes for identifying and analyzing hazards and for planning and controlling work are not institutionalized and are often ineffective in controlling hazards.** Of particular concern are the informal processes applied to non-routine work, including non-routine maintenance, construction-like activities performed by operating divisions, and changes to experimental or programmatic equipment.
- **DOE and SNL assessment and corrective action programs have not been sufficient to monitor and assess environment, safety, and health management and performance and ensure that identified deficiencies are properly addressed.** SNL assessments do not emphasize assessing performance of work, and the root causes for environment, safety, and health deficiencies are not adequately determined, such that appropriate corrective actions are identified and verified to be effective. Recognizing that the SNL assessment

program was not providing the needed data, AL and KAO appropriately decided to terminate the pilot line oversight program, which had placed a moratorium on DOE line oversight at SNL. However, since terminating the pilot, AL and KAO have not implemented an assessment program that is consistent with the requirements of DOE's policy on line management oversight (DOE 450.5, *Line Environment, Safety, and Health Oversight*) and that recognizes the weaknesses in the SNL assessment program.

AL, KAO, and SNL recognize most of the identified deficiencies and indicated that they will be addressed as part of the integrated safety management initiative. The implementation plan calls for initiating integrated safety management in all SNL divisions by October 1997, and having integrated safety management fully implemented by September 1998.

Conclusions

Many competent and qualified DOE and SNL managers and workers have demonstrated a commitment to improving safety performance. A number of promising actions have been initiated, such as developing an integrated safety management implementation plan and assigning SNL environment, safety, and health personnel to the operational divisions. However, the safety management program at SNL is not yet achieving the Department's objective of fully integrating safety into work practices. The significant weaknesses listed above have slowed the pace of improving safety performance and warrant increased DOE and SNL management attention. While weaknesses need to be addressed, AL, KAO, and SNL are well positioned to build on existing initiatives by applying the broad array of technical resources and SNL's extensive systems engineering expertise to improving the effectiveness of integrated safety management systems.

OVERVIEW OF OPPORTUNITIES FOR IMPROVEMENT

Strengthen AL, KAO, and SNL leadership of environment, safety, and health programs. Senior DOE and contractor managers should further increase their efforts to promote and ensure the full implementation of integrated safety management and involvement in facility and safety management issues. Senior managers should eliminate barriers within the SNL organization to establishing institutional processes for hazard analysis, work control, and assessment activities.

Clarify DOE and SNL roles and responsibilities and strengthen individual accountability. DOE Headquarters Defense Programs, AL, and KAO should develop a clear transition plan for changes in roles, responsibilities, and organizational relationships arising out of the 120-Day Study. SNL should clarify and, where possible, simplify relationships among programs, line organizations, and managers responsible for buildings. Both DOE and SNL need to strengthen accountability for safety performance.

Strengthen the DOE and SNL requirements management processes. DOE and SNL should improve processes for evaluating and incorporating new requirements into the SNL contract, institutional safety plans, and ultimately into working level procedures and controls. SNL should also ensure that requirements for environment, safety, and health are clearly defined for subcontracted work.

Establish a more structured process for planning and controlling work activities, including appropriate hazards analysis using the integrated safety management core functions. Work-planning processes should be strengthened through clear expectations and a framework for hazards analysis, increased worker participation, and a stronger link between hazards analysis and controls. Work control processes should be strengthened and formalized, including proper authorization of work and development of a clear procedure addressing procedure use and adherence.

Strengthen the DOE and SNL assessment programs and incorporate them into integrated safety management. DOE should more effectively monitor SNL environment, safety, and health performance by implementing a program for multi-functional and crosscutting appraisals that is consistent with DOE's policy on line environment, safety, and health oversight and recognizes the current weaknesses in SNL assessment and corrective action programs. DOE should also increase the use of KAO and AL subject matter experts in operational awareness activities. SNL should broaden self-assessment processes to better monitor operations performance, the implementation of functional area programs, and the Occurrence Reporting and Processing System performance. SNL should also provide training on self-assessment techniques and applicable standards and requirements.

Strengthen SNL and KAO issues management systems to ensure correction of deficiencies and effectively evaluate sitewide environment, safety, and health performance. DOE and SNL should strengthen issues management processes to properly capture, track, analyze, trend, and verify adequate corrective actions for identified safety deficiencies and root causes. Sitewide implementation of the Occurrence Reporting and Processing System should be strengthened.

Strengthen the implementation of SNL sitewide training. SNL should develop job qualification training programs for various technical positions and increase emphasis on development of analytical skills. Both KAO and SNL need to establish processes for monitoring the effectiveness of training programs.